

TRIP REPORT
April 28 - May 2, 1986

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3 copies

Int'l Satt

April 28, 1986

Texas Brine, Dale, New York

We witnessed a MIT on Wells 29, 30, 34 (A Temporarily Abandoned Gallery)

3:07 p.m. 242 lbs. (measured on dead weight tester)

4:08 p.m. 242 lbs.

All three wells passed the MIT. Larry Thomas, the plant manager, performed the MIT. From 5:30 p.m. - 7:00 p.m. we witnessed the casing and cementing of an injection well at the Texas Brine Wyoming, New York facility.

April 29, 1986

We witnessed a MIT of the following wells:

41, 42, 43 (A Temporarily Abandoned Gallery)

8:52 a.m. 254 lbs.

9:55 a.m. 254 lbs.

All three wells passed the MIT. Larry Thomas performed the MIT.

At 12:50 p.m. we arrived at BCR Development in Alma, New York. BCR operates enhanced recovery injection wells to produce oil. Lyle Sloat showed us around the facility. Mr. Sloat did not know how many injection wells were located at the site.

The pressure plant was operating at 1200 lbs., and a pressure gauge on well #121 read 800 lbs. of pressure. Pictures were taken of the pressure plant gauge and the well #121 injection well gauge.

There was a strong hydrocarbon odor near well #121. The housekeeping at the facility was poor. There were many oil stains on the grass.

We gave Mr. Sloat a Notice of Inspection Form, and we left at 1:08 p.m.

We arrived at Columbia Gas in Greenwood, N.Y. at 2:25 p.m. We met with Frank Bennett, Senior Engineer, and Tom Harkenrider, Compressor Station Engineer in Charge.

The Brine Disposal Well is 4374 feet deep, completely cased and cemented, but it does not have tubing. The pressure is recorded continuously. There is evidence of brine spills near the well. The well is on a hill, and the vegetation at lower elevations than the well is dead (photos taken). There is a blow off valve on the well, with no lock or fence. The well had a pin hole leak around a valve - a few ounces of brine per hour was dripping out. The leak appeared to be caused by a defective gasket.

The blow off valve should have a lock, and there should be a fence around the well. There may be ground water contamination from the brine spills. We also observed an empty 500 gallon gasoline tank and a 200 gallon diesel tank. Both tanks were undiked.

The Disposal well is only used from December - March, when gas is taken out of storage caverns. The stored gas contains brine, which is collected and injected when the stored gas is removed from caverns in the winter. This is not a conventional brine disposal well.

The mechanical integrity of the well will be tested at 1000 lbs. for one hour, using air or water as the fluid. The well has no tubing, and therefore no annulus. Estimated cost of the MIT is \$5,000. The MI of this well has never been tested since it began operating in 1964.

Mr. Bennett showed us monitoring results of pressure and flowrate for the months of 12/85 - 1 - 3/86. We also discussed the need for a groundwater monitoring plan.

We met with Larry Sevenker, Consultant to Cargill Salt from 9 p.m. - 10:30 p.m.. Mr. Sevenker told us the following:

1. A two hour MIT was performed on Well #12 (the only unplugged well in the gallery near the contaminated monitoring wells). Well #12 was last used as a production well, so the pressure was only 38 lbs. The pressure could not be increased for the test. There was no pressure loss during the test.
2. Earlier that day, Mr. Sevenker performed a MIT on Cargill's only operational gallery - wells 13, 14, 16. The MIT passed.
3. The #10 water well had about 500 - 600 mg/l chlorides, and the cottage well had about 2,000 mg/l chlorides, before the cottage well was flushed with clean water.
4. Three monitoring wells have been drilled (about 40 feet deep - could not go deeper because of silt), and a fourth will be drilled tomorrow.

The new wells are 2 inches in diameter. Estimated cost for the 3 wells is \$2,000. One of the monitoring wells was drilled 2 inches from the plugged #10 injection well (to check for a gallery leak). That well was a dry well.

After Cargill observed high chloride concentrations in the cottage well, they tried to pump it clean. When this didn't work, they received permission from the DEC to pump clean water into the cottage well. The chloride concentration dropped from about 2,000 mg/l chlorides to about 200 mg/l chlorides after 24,000 gallons of fresh water was injected. The two monitoring wells near the cottage well, then showed 50 - 70 mg/l chlorides. After the flushing, the #10 water well also showed reduced chlorides.

April 30, 1986

We had a meeting with the following people:

Larry Sevender - Consultant to Cargill
Joe Pinkham - Cargill
Zane Untergaber - Cargill
Toni Callaway - DEC, Albany
Don Drazan - DEC, Avon
Bradley Field - DEC, Albany

DEC gave permission to flood the cottage well after Cargill submitted data showing that the contamination was very localized. Another well, 100 feet from the #10 water well, had 150 mg/l chlorides before flushing. The ground water flow direction and velocity is not known in the area of concern. The new monitoring well construction indicated a probable clay layer between two fresh water zones. Cargill has three theories for the chloride contamination:

Theory 1 - Until the early 1970's annular injection was used. This resulted in many brine spills. An old spill may have caused the problem.

Theory 2 - There is an active summer cottage, with a septic tank leach field 30 feet from the #10 water well. The high chlorides could be due to sanitary waste.

Theory 3 - The above cottage has a water softener, and water softener backwash could have caused the chlorides problem.

If Cargill had not flushed the cottage well, a cation, anion, and fecal coliform analyses could have given us valuable information.

Around June 1, Cargill will sample the #10 water well for anions, cations, and fecal coliform. In addition, they will sample chlorides weekly from all monitoring wells for two months. If EPA and DEC approve, monitoring will then be changed to monthly. We will receive an interim report by May 15, 1986.

Well 12 (TA) production well

All other wells in gallery plugged and abandoned

3:43 p.m. 35 lbs.

4:45 p.m. 35 lbs.

MIT performed by Larry Sevenker using dead weight tester

The pressure could not be increased on the gallery. Due to low pressure, the test is inconclusive.

May 1 - International Salt

All MITs performed by Larry Sevenker using a dead weight tester

Wells 27, 28, 46 (A Temporarily Abandoned Gallery)

9:53 a.m. 260 lbs.
10:54 a.m. 260 lbs. All wells passed

Wells 30, 31, 45 (A Temporarily Abandoned Gallery)

11:23 a.m. 165 lbs.
12:27 p.m. 165 lbs. All wells passed

Wells 48, 50 (A Temporarily Abandoned Gallery)

2:16 p.m. 135 lbs. .
3:17 p.m. 135 lbs. All wells passed

Wells 47, 55, 56 (A Temporarily Abandoned Gallery)

3:38 p.m. 165 lbs.
4:38 p.m. 165 lbs. All wells passed

May 2, 1986 - International Salt

All MITs performed by
Larry Sevenker using
Dead Weight Tester

Wells 43, 44, 34 - Active Gallery

8:06 a.m. 35 lbs.
9:25 a.m. 35 lbs.

Mr. Sevenker did not have the proper fitting to measure the pressure on the injection well, so he measured the pressure on a production well.

Test inconclusive because low pressure.

Wells 52, 57 - Active gallery

9:52 255 lbs.

Test inconclusive because the well was turned on before we could make a final reading.

We left International Salt at 11:30 a.m..